Joint Legislative Audit and Review Commission
of the Virginia General Assembly

Equity and Efficiency of Highway Construction and Transit Funding

Staff Briefing
November 13, 2001

Introduction

Staff for this study:

Glen Tittermary, Division Chief

Hal Greer, Project Leader

Anne Oman

Aris Bearse

Presentation Outline

- ☑ Introduction and Summary of Findings
- ☐ Background
- ☐ Functional Classification and Needs Assessment
- ☐ Allocation of Funds Among and Within Functional Roadway Systems
- ☐ Adequacy of Funding and the VTA
- ☐ Public Transit in Virginia

Study Mandate

- In November 2000, the Joint Legislative Audit and Review Commission authorized a review of the equitable allocation of highway construction funds to the various highway systems and among Virginia localities

- In May 2001, the Commission requested that the review be expanded to include an examination of transit funding

Study Issues

- **Should VDOT continue to use a needs-based system for the allocation of highway construction funds?**
- **Does VDOT appropriately define and measure highway construction needs for purposes of allocating State highway construction funds?**
- **Should the current primary, secondary, and urban road classification systems continue to be used to allocate construction funds, and if so, are funds equitably allocated among these road systems and the National Highway System?**

Study Issues
(continued)

- Is the allocation of funds within the primary, secondary, and urban systems equitable?
- Are separate bridge and unpaved road funds needed, and if so, what amount should be allocated to such funds?
- What level of construction funds will be available in relation to future allocations?
- What is the role of transit, and is transit equitably and efficiently funded?

Research Activities

- **Structured interviews with:**
  - **Secretary of Transportation, VDOT assistant commissioners, and the director of the Department of Rail and Public Transportation**
  - **VDOT staff in transportation planning, traffic engineering, structure and bridge, financial planning, urban and secondary roads, data management, programming and scheduling**
  - **Virginia Transportation Research Council staff**
  - **Local transportation and Federal Highway Administration officials**

Research Activities
(continued)

- Panels to receive input from local government officials and Commonwealth Transportation Board members
- Request for written comments from every Virginia locality

Research Activities
(continued)

- **Data collection and analysis**
  - **Analysis of VDOT's 2001 quinquennial needs assessment**
  - **Analysis of Highway Economic Requirements System and development of needs assessment using the model**
  - **Collection and analysis of factors that could serve as proxies for need**
  - **Analysis of VDOT financial data and revenue projections**
- **Other states review**

Summary of Staff Findings

- **The current system for allocating construction funding seems outdated and needs to be revised to ensure that construction funds are equitably and efficiently allocated**

- **The existing administrative system needs to be replaced with a road classification system based on the functional purpose of the roads and new funding regions created for purposes of allocating regional construction funds**

Summary of Findings
(continued)

- A needs-based system should continue to be used to allocate construction funds, however VDOT should improve the process and produce a needs assessment that is accurate and objective

- Highway construction funds should be allocated proportionally among the statewide, regional, and local road systems based on need, with more funds targeted to highways of statewide significance

Summary of Findings
(continued)

- A separate bridge fund should be established to ensure that funding of needed bridge replacements is adequately prioritized

- Based on projected construction funds and the estimated cost of constructing projects identified as legislative priorities, there will not be sufficient funds to pay for identified projects over the next ten years – a $6.5 billion shortfall

Summary of Findings
(continued)

- **The General Assembly's involvement in the funding process has had some important benefits in the near term, but it may wish to re-examine its long-term role in the process and give itself the authority to appoint the five at-large members to the Commonwealth Transportation Board**

- **Public transit alternatives need to be given a higher priority in planning for Virginia's future transportation system, especially in urbanized regions of the State**

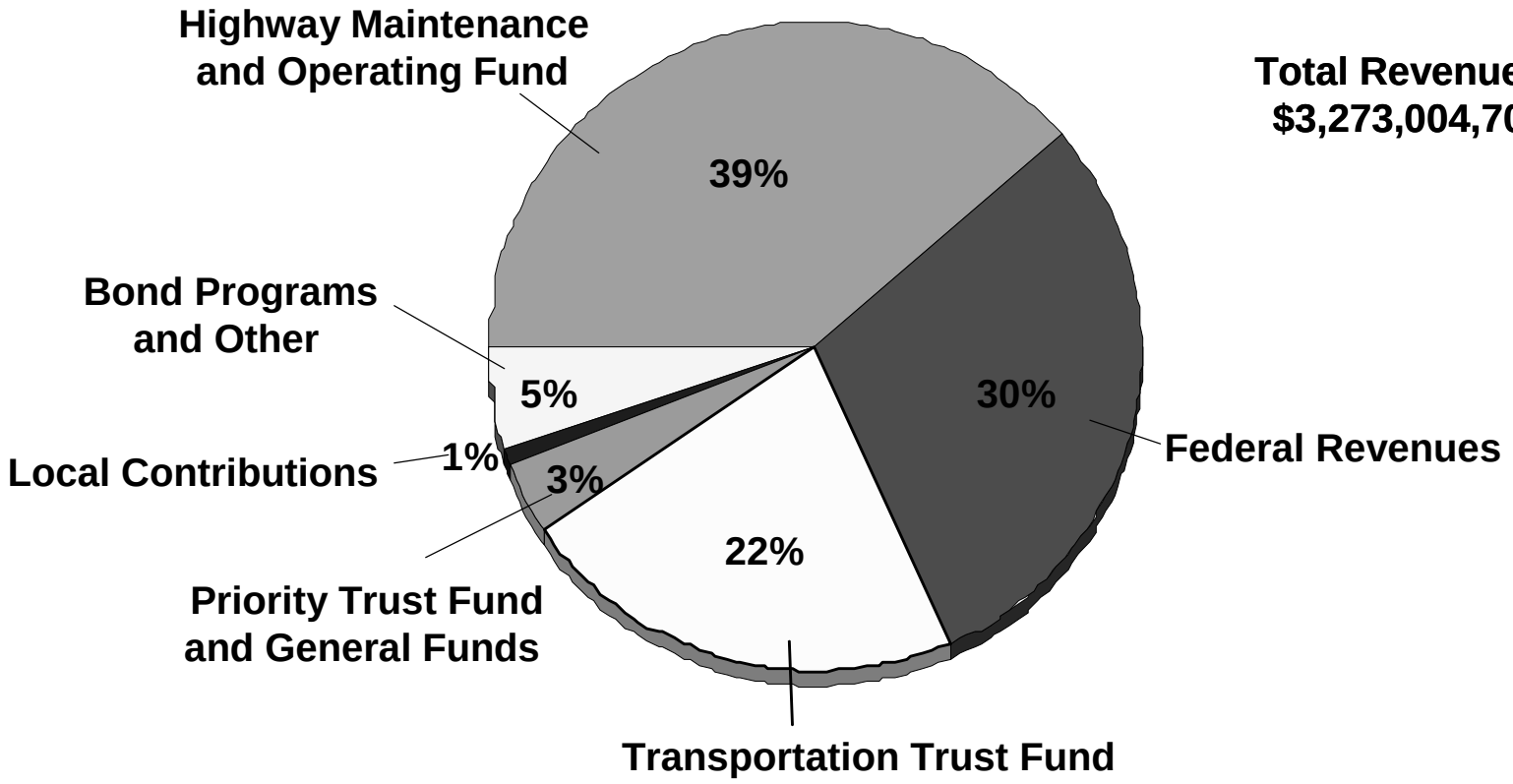
Presentation Outline

- ☐ Introduction and Summary of Findings
- ☑ Background
- ☐ Functional Classification and Needs Assessment
- ☐ Allocation of Funds Among and Within Functional Roadway Systems
- ☐ Adequacy of Funding and the VTA
- ☐ Public Transit in Virginia

Transportation Finance in Virginia

- **Titles 33.1 and 58.2 of the *Code of Virginia* set out transportation revenues and how they are allocated**
- **VDOT is a non-general fund agency**
- **Transportation revenues from State, federal and other sources for FY 2002 totaled $3.3 billion**
- **VDOT funding is not distributed using one formula -- separate formulas allocate State and federal funds, funds for the various VDOT programs, and funds to highways and other modes**

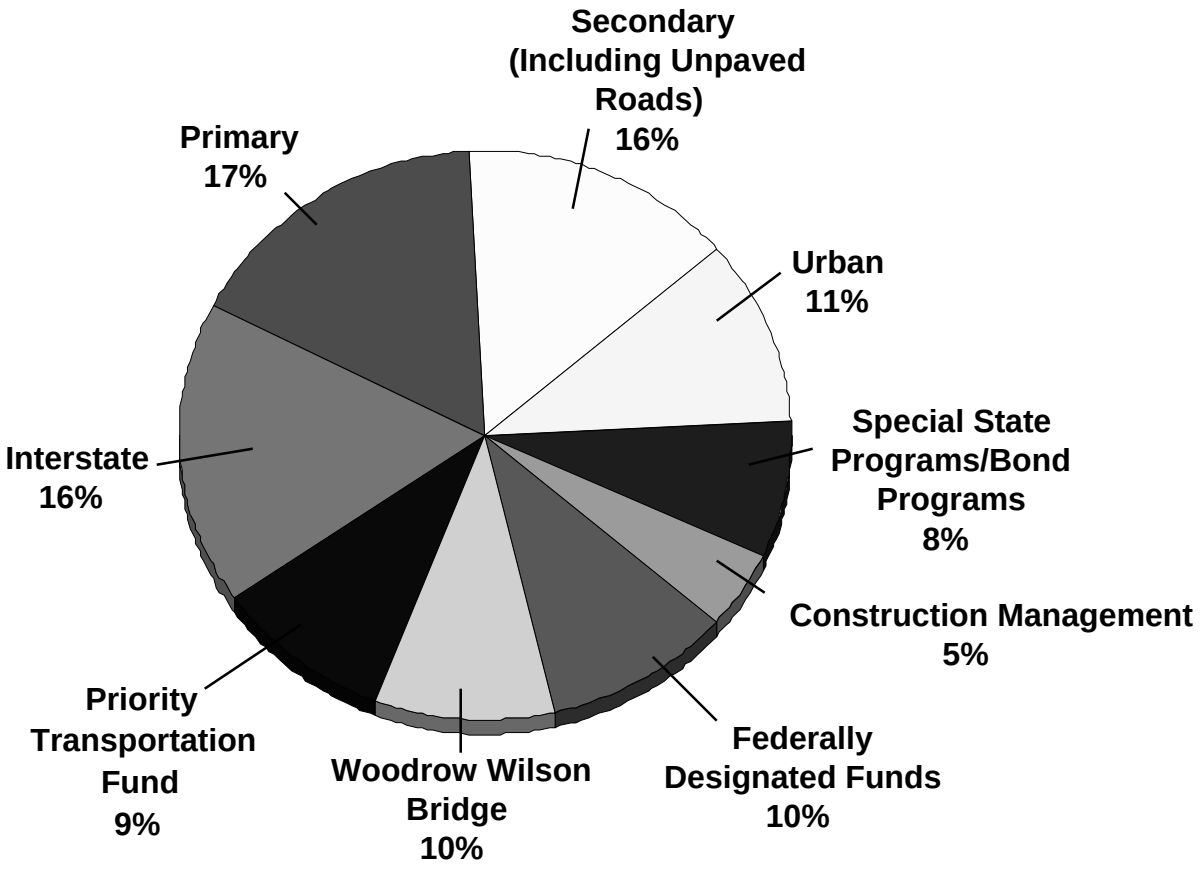
Transportation Revenue Sources, FY 2002



VDOT Construction Program

- **Funds for the highway construction program in FY 2002 total $1.65 billion, of which $974 million of State and federal funds are allocated according to State law**
- **Section 33.1-23 of the *Code of Virginia* directs State highway construction funds to be allocated as follows:**
  - **Any required interstate match**
  - **5.67 percent of remainder to unpaved roads**
  - **Of the remainder,**
    - **40 percent to the primary system**
    - **30 percent to the secondary system**
    - **30 percent to the urban system**

FY 2002 VDOT Construction Program Allocations



.

Total Allocations: $1,654,413,600

Use of Federal Funding

- Federal-aid highway apportionments make up an increasing portion of VDOT's total construction budget
- In 1990 federal funds made up only 32 percent of VDOT's construction budget
- In 2002, the federal share of VDOT's construction budget has grown to 60 percent
- However, the *Code of Virginia* does not direct how VDOT allocates most federal funds

Prior Studies of Allocation of Highway Construction Funding

- In 1982-1984 JLARC conducted a review of the reasonableness, appropriateness, and equity of the statutory provisions for allocating highway construction funds
- JLARC staff defined equity as the allocation of highway construction funds according to relative construction needs
- Recommendations of that study served as basis for major changes to the allocation formulas enacted in 1985
- Formulas have not been adjusted since that time

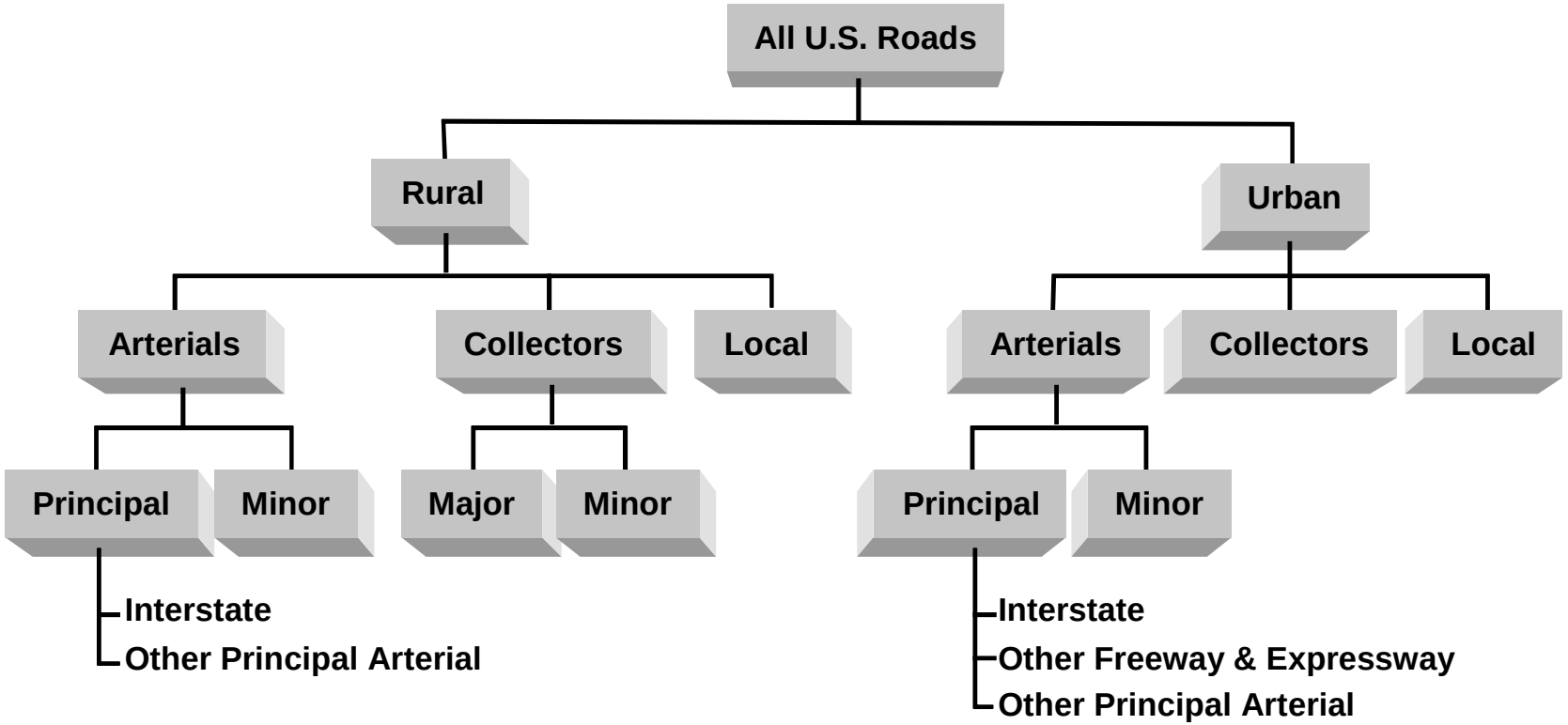
Prior Studies of Allocation of Highway Construction Funding (continued)

- Two additional studies of transportation funding have been conducted since the mid-1980s
- In 1991, SJR 188 directed VDOT to study the Transportation Trust Fund allocation formulas
  - The study concluded adjustments to the formulas should be made to restore equity to the allocation system, but no changes were made
- In 1996 HJR 160 established the Commission on the Future of Transportation and directed it to study transportation needs
  - No changes were made as a result of this study

Presentation Outline

- ☐ Introduction and Summary of Findings
- ☐ Background
- ☑ Functional Classification and Needs Assessment
- ☐ Allocation of Funds Among and Within Functional Roadway Systems
- ☐ Adequacy of Funding and the VTA
- ☐ Public Transit in Virginia

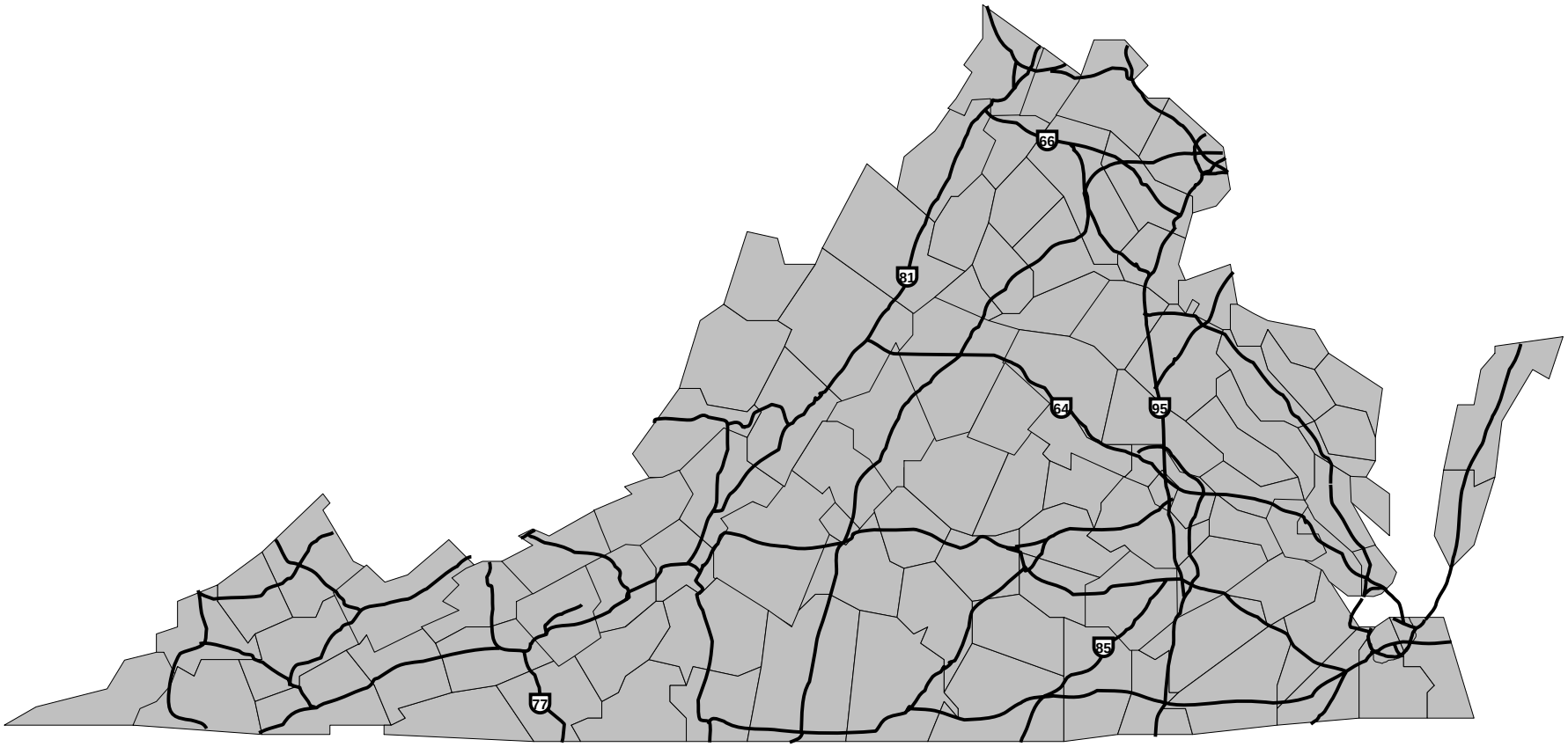
Highway Functional Classification System



Lane Miles by Functional Class

Functional Class	Rural	Urban	Total
Principal Arterial	8,814	7,128	15,942
Minor Arterial	7,503	5,714	13,217
Collector	24,736	4,067	28,803
Local	63,687	27,272	90,958
Total	104,740	44,180	148,920

National Highway System



Administrative System Is Antiquated and Not Based on Functional Purpose

- Current administrative system, which has evolved over 80 years, is not based on the functional classification system
- As a result, each road system within the existing classification system contains a collection of roads with multiple functional purposes

Administrative System Miles by Functional Class

Administrative System / Functional Class	Primary System: Miles by Functional Class	Primary System: Percent of Total Primary Miles	Urban System: Miles by Functional Class	Urban System: Percent of Total Urban Miles	Secondary System: Miles by Functional Class	Secondary System: Percent of Total Secondary Miles
Principal Arterial	8,186	38%	2,226	10%	196	<1%
Minor Arterial	7,805	36%	3,508	15%	1,904	2%
Collector	5,163	24%	2,153	9%	21,487	22%
Local	458	2%	14,818	65%	75,682	76%
Total	21,612	100%	22,705	100%	99,269	100%

Case Examples of Roads with Questionable Classification

- **Secondary roads that are functionally classified as arterial roads and carry high volumes of traffic:**
  - **Braddock and Franconia roads in Fairfax county are classified as minor arterials and carry more than 40,000 vehicles per day**
  - **Parham road in Henrico county is classified as an urban principal arterial, is part of the National Highway System, and carries more than 55,000 vehicles per day on some sections**
- **Primary roads that are classified as collector roads and carry low volumes of traffic:**
  - **Route 52 in Bland County carries less than 200 vehicles per day**
  - **Route 300 in Powhatan County carries less than 400 vehicles per day**

Parham Road
Henrico County

State Route 300
Powhatan County

Limitations of Administrative System

- No funds are allocated expressly for a system of roads of statewide significance
- Roads with different functional purposes have to compete for the same allocation of highway construction funds
- Funding decisions regarding roads are often not being made by the appropriate decision maker

New Three-Tiered Road System Should Be Developed Based on Functional Purpose

- First tier should be the highest level roads which are roads of statewide significance. The National Highway System can serve as the basis for determining which roads are part of the statewide system
- The second tier should be a regional system that includes all arterial roads that serve a regional functional purpose
- The third tier should include collectors and local roads which serve local functions

State Lane Miles by Administrative and Proposed Classification Systems

Administrative System

System	Lane Miles
Interstate	5,335
Primary	21,612
Secondary	99,270
Urban	22,704
Total	148,920

Proposed System

System	Lane Miles
Statewide	14,194
Regional	15,047
Local	119,679
Total	148,920

Notes: Secondary lane miles include Arlington and Henrico county roads.
Component lane miles do not add to total due to rounding.

Lane Mileage from Administrative Systems in Proposed Systems

Proposed Road Classification	*Interstate Lane Miles*	*Primary Lane Miles*	*Secondary Lane Miles*	*Urban Lane Miles*
Statewide System	**5,335**	**7,428**	**236**	**1,195**
Regional System		**8,599**	**1,900**	**4,548**
Local System		**5,585**	**97,134**	**16,960**

Note: Table includes Arlington and Henrico county roads.

Proposed New Classification System Would Improve Allocation System

- New system would allow VDOT and CTB to consider and focus on roads of statewide significance
- Interstate system needs to be integrated into the statewide system to be consistent with recent changes in federal law
- Regional and local roads need to be considered separately for allocation purposes
- Decision-making authority regarding the allocation of funds should be based on the functional purpose

Recommendations

- **The General Assembly may wish to consider amending Articles 1.1 and 2 of Title 33.1 of the *Code of Virginia* to repeal the current administrative classification system and establish a new three-tier system for the allocation of highway construction funds that consists of statewide, regional, and local systems based on the federal road classification system.**

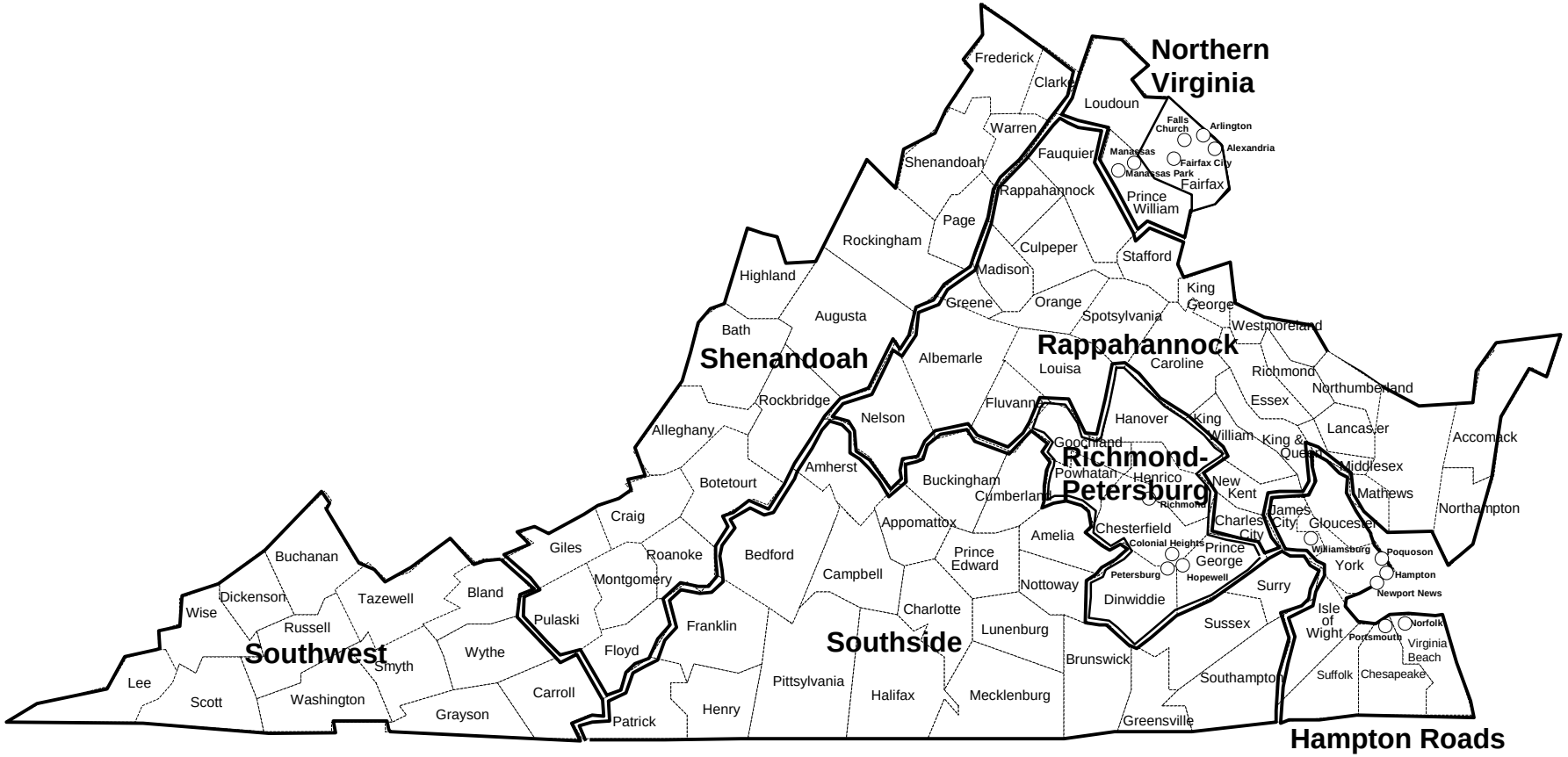
Recommendations
(continued)

- **The General Assembly may wish to consider amending Articles 1.1 and 2 of Title 33.1 of the *Code of Virginia* to specify that the Commonwealth Transportation Board shall have the authority to allocate statewide system funds at the project level based on system priorities, and the authority to allocate regional system funds at the project level in coordination with local governments, and where appropriate, regional bodies within the region impacted. The General Assembly may wish to further specify that local governments shall have the authority to allocate all local system funds based on local priorities.**

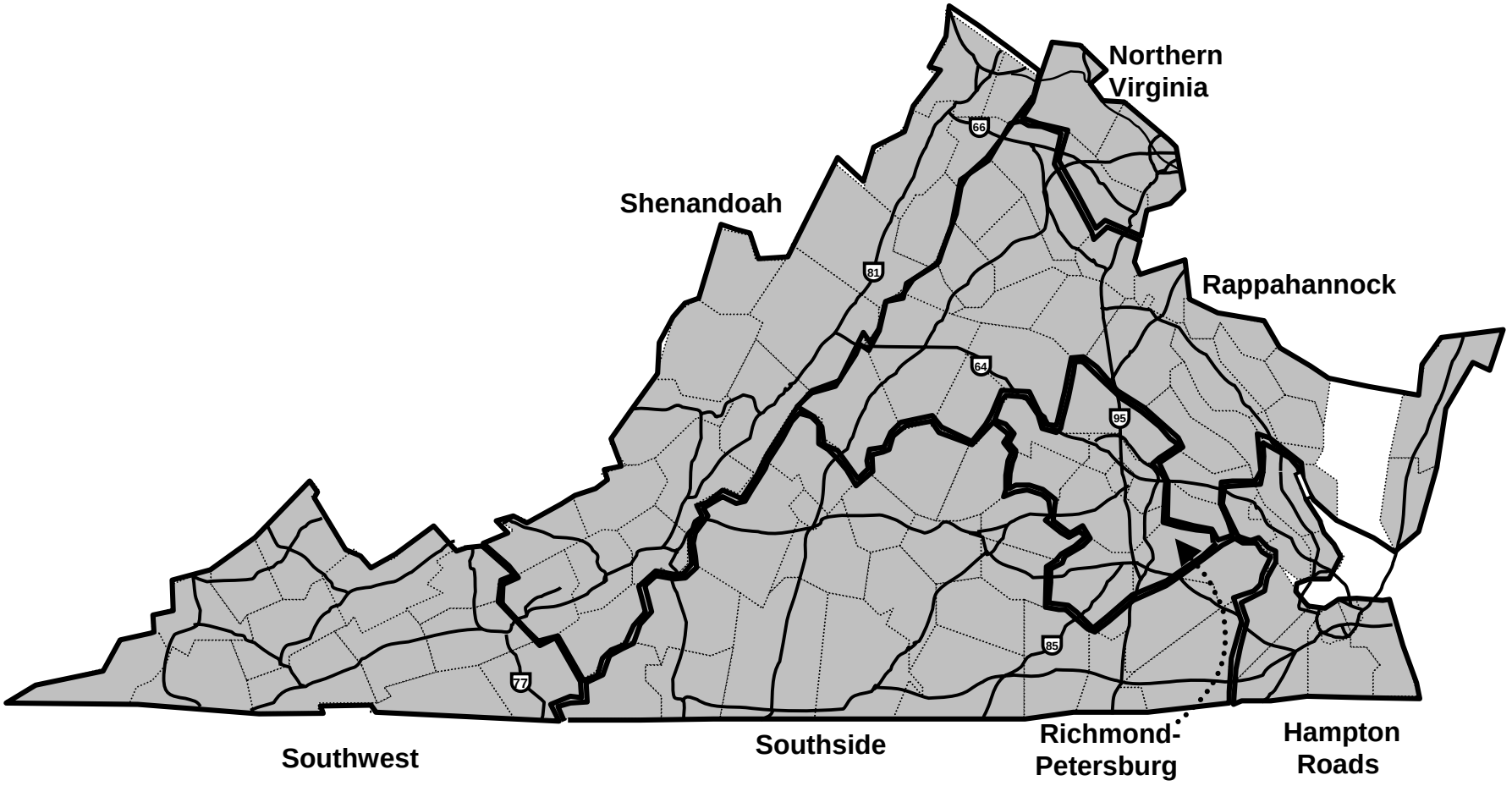
New Funding Regions Should Be Established

- Existing VDOT districts are based on 1922 Congressional districts and are antiquated and arbitrary
- With one exception, these 80-year-old districts bear no relation to transportation corridors or regional transportation entities such as metropolitan planning organizations
- The only district based on regional transportation is the Northern Virginia district, which was created in 1984 and has the same boundary as the MPO

Proposed Funding Regions



Proposed Statewide Highway System Shown in Proposed Funding Regions



Recommendations

- **The General Assembly may wish to consider establishing seven funding regions based on MPOs and major transportation corridors and require that regional system construction funds be allocated among the regions instead of among the existing VDOT districts.**

- **The General Assembly may wish to consider amending § 33.1-2 of the *Code of Virginia* to repeal the requirement that there be one CTB member appointed from each of the nine VDOT districts and to instead require that one member be appointed from each of the seven new funding regions.**

Purpose of Highway Needs Assessment

- Virginia's first comprehensive statewide highway needs assessment was performed in 1982 for the last JLARC study of the allocation of highway funds

- There were two primary uses of the needs assessment:
  - First, it was used to determine the proportional distribution of funds among the primary, secondary, and urban systems based on relative need
  - Second, it was used to identify factors that could be used to distribute funds to the jurisdictions within each of these three systems in proportion to relative need

Quinquennial Needs Assessment Requirement

- In 1985 the General Assembly enacted legislation revising the highway allocation formulas
- The formulas enacted were based largely on those recommended by JLARC as a result of its analysis of the statewide needs assessment
- At the same time, the General Assembly enacted a requirement that VDOT undertake a comprehensive assessment of highway needs every five years, beginning in 1989

Needs Assessment Requirement Misunderstood

- The issue of revenue adequacy has overshadowed the primary purpose of the needs assessment – a tool for the development of equitable allocation formulas
- Few local officials or transportation professionals recall that current formulas were based on the results of the needs assessment
- VDOT management do not appear to recognize that the allocation formulas were developed based on needs assessment

VDOT's 2001 Highway Needs Assessment Is Inadequate

- VDOT's most recent needs assessment is inadequate to fulfill the purposes for which the requirement was enacted
- Although due October 1, 1999 it was not submitted to the General Assembly until the 2001 Session, then only following pressure from individual General Assembly members
- The submission was in the form of a letter, and included only a summary of needs by system and region with no detailed analysis attached

VDOT's 2001 Highway Needs Assessment Is Inadequate (continued)

- VDOT staff at all levels indicated the department did not commit substantial staff time or effort to the assessment
- Executive management level support for the process was lacking because it was viewed as a time-consuming effort with limited usefulness
- Staff were not given guidelines on how the process was to be conducted until shortly before the submission deadline
- The late date at which parameters were provided precluded substantial data collection and analysis

Shortcomings of VDOT's 2001 Highway Needs Assessment

- VDOT did not undertake a new needs assessment, but essentially re-released the 1994 assessment
- VDOT assumed no new deficiencies had developed since 1994
- Used outdated data -- generally at least seven years old
- Subjective decision-making to select or reject identified needs
- Cost estimates used to quantify needs not adjusted to reflect geographical differences

VDOT Must Develop Objective Needs Assessment

- JLARC staff were not able to use VDOT's needs assessment to evaluate the equity of the current allocation formulas
- If the General Assembly wishes to continue to allocate funds according to need, it is essential that an objective and accurate needs assessment be conducted
- VDOT should adopt a set of objective criteria to identify deficient road segments, and limit its assessment to deficiencies identified using these criteria

Proven Needs Assessment System Is Available

- For more than 20 years FHWA has had a model for the analysis of highway needs that it uses to assess the condition and performance of the nation's highways for a mandated biennial report to Congress
- The analytical tool is called the Highway Economic Requirements System, or HERS
- HERS produces an estimate of highway deficiencies by examining traffic volumes, capacity, pavement condition, speeds, accidents, curves, grades and other highway attributes

HERS System Could Be Used to Conduct Needs Assessment

- The U.S. GAO reviewed HERS in 2000 and found it to be an effective way to identify highway needs
- Other states have customized HERS to fit state-specific needs and use it to identify long-range needs and investment requirements
- FHWA recently developed a state-specific HERS software package called HERS/ST
- FHWA recently launched a pilot program to test HERS/ST in 2000, and 20 states chose to participate; Virginia did not

Strengths of the HERS Model

- Software objectively identifies highway deficiencies by functional class and selects appropriate improvements based on cost-benefit analysis
- Incorporates a wider range of costs and benefits than VDOT could assess
- It was developed by outside sources and is based on rigorously reviewed models
- Reduce required staff effort by VDOT because they already collect the data used by HERS

Limitations of HERS Would Have to Be Addressed

- **HERS does not include data on all functional classifications of roads – excludes rural minor collectors and local roads**
  - **Data on these systems can be collected separately, as is currently done**
- **HERS does not include bridge deficiency analysis**
  - **VDOT has separate data base that can be used for these purposes**
- **Sample size should be supplemented if data are to be used to distribute funds geographically**

Purposes of Needs Assessment Cannot Be Filled by Federal Long-Range Plan

- VDOT has suggested using the federally-mandated long-range plan in lieu of a needs assessment
- Long-range plans and needs assessments serve different purposes
- Long-range plan is intended to guide project selection, not assess needs
- Federal government understands the distinction and conducts a needs assessment in addition to the development of long-range plans

Recommendation

- **The General Assembly may wish to consider amending Section 33.1-23.02 of the *Code of Virginia* to specify the purposes of the quinquennial needs assessment and require VDOT to use an objective, measurable tool, such as HERS or an equivalent, for the identification of highway deficiencies.**

Presentation Outline

- ☐ Introduction and Summary of Findings
- ☐ Background
- ☐ Functional Classification and Needs Assessment
- ☑ Allocation of Funds Among and Within Functional Roadway Systems
- ☐ Adequacy of Funding and the VTA
- ☐ Public Transit in Virginia

Allocation of Funds Based on Proportional Need

- Needs assessment provides basis for equitable allocation of highway construction funds
- Allocations to statewide, regional, and local highway systems based on proportional needs of respective systems
- Needs assessment also provides basis for distribution of funds to regions and localities within regional and local systems

Estimation of Highway Construction Needs

- Ten-year highway construction needs estimates developed using State version of the Highway Economic Requirements System (HERS/ST) model
- HERS/ST provided needs estimates for all Virginia roadways except local roads, rural minor collector roads, and bridges
  - Local and rural minor collector roadway needs estimated through use of VDOT's analysis of minimum tolerable conditions
  - Bridge needs were estimated using federal deficiency criteria

Estimation of Highway Construction Needs
(continued)

- Needs estimates produced by functional class and grouped into statewide, regional, and local systems
- Arterial roadway needs appear to be driven by congestion, while local and collector roadway needs appear to be driven by safety issues
  - Approximately 80 percent of statewide and regional system needs in urban functional classes
  - Approximately 80 percent of local system needs in rural functional classes
- Sample sizes should be increased for future highway needs assessments

Ten-Year Needs Estimates for Statewide, Regional, and Local Systems

Highway System	Ten-Year Needs	Proportional Needs
Statewide	$ 14,295,845,549	39.3%
Regional	$ 12,164,465,582	33.4%
Local	$ 9,955,004,620	27.3%
Total	$ 36,415,315,751	100.0%

Allocations Based on FY 2001 Highway Construction Revenue

Highway System	Amount Allocated
Statewide	$ 345,368,557
Regional	$ 293,519,334
Local	$ 239,912,509
Total	$ 878,800,400

Allocation of Construction Funds Within Statewide System

- Commonwealth Transportation Board would determine how to allocate statewide system funds
- This approach would enable the CTB to examine the statewide system as a whole and to determine the highest priority needs on a project-by-project basis
- CTB should develop a prioritization system for the selection of highway projects on the statewide system

Recommendation

- **The Commonwealth Transportation Board should allocate statewide system funds on a project-by-project basis based on a prioritization of statewide system needs.**

Allocation of Construction Funds Within Regional and Local Systems

- Allocations to regions and localities based on factors that serve as proxies for highway construction needs
  - More practical than conducting annual needs assessment
  - Use of proxies results in more stable allocations over time
- Current allocations to primary, secondary, and urban systems based on proxies for need

Methodology for Selection of Proxies

- Factors identified that might be associated with need based on literature review and discussions with transportation officials
- Statistical methods applied to analyze relationships between identified factors and highway construction needs
- Proxies selected based on strength of association with estimated needs, simplicity, and ease of collection

Factors Identified as Possible Proxies

System Demand Factors

- Population (2000)
- Population change (1990-2000)
- Projected population (2010)
- Population density
- Employment
- No. of Business Establishments
- Registered vehicles
- Licensed drivers
- Vehicle miles traveled
- Vehicles per lane mile
- Population per lane mile

System Size Factors

- Land Area
- Centerline miles
- Lane miles

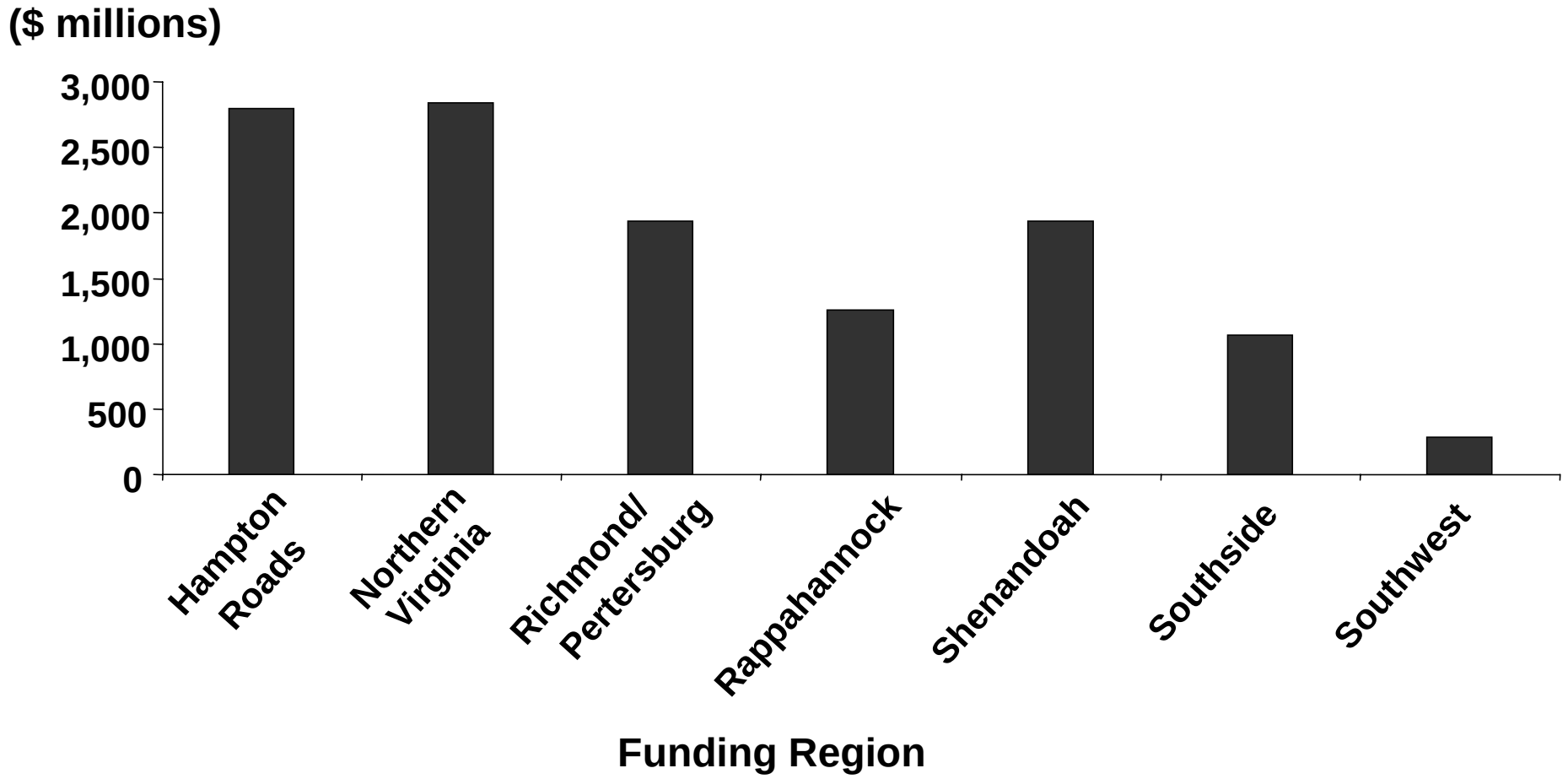
Other Factors

- Accident rate
- Acres of farmland
- Poverty rate
- Per-capita income

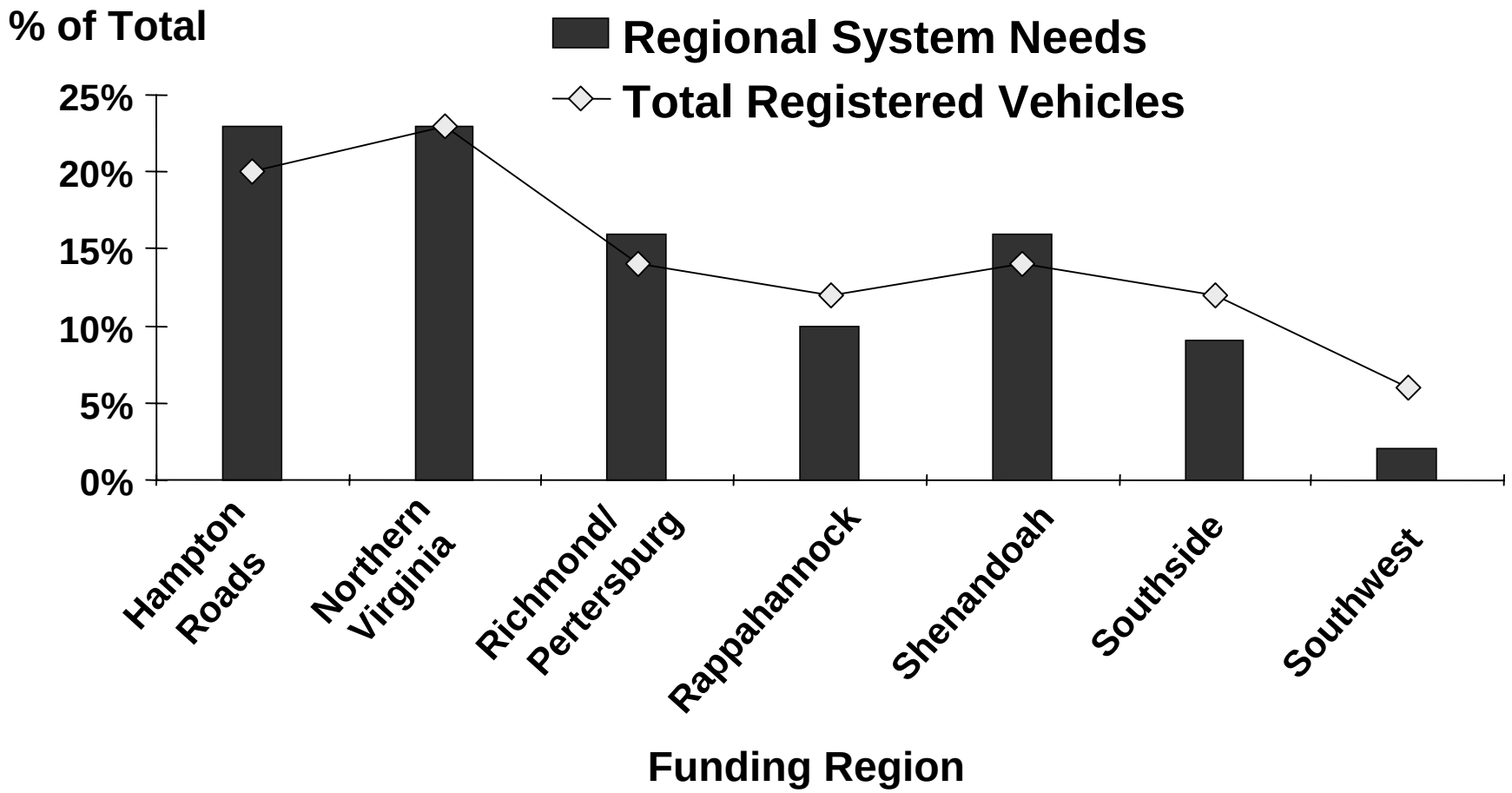
Proxy Selection for Regional System Needs

- Majority of regional system needs estimated to be in three major urbanized areas of Northern Virginia, Hampton Roads, and Richmond/Petersburg
- System demand factors highly correlated with regional system needs
  - Total registered vehicles had strongest association with need
- System size factors were not associated with regional system needs

Ten-Year Regional System Needs by Proposed Funding Region



Relationship Between Regional System Needs and Total Registered Vehicles



FY 2001 Regional Allocations Based on Total Registered Vehicles

Funding Region	Allocation
Hampton Roads	$ 57,307,356
Northern Virginia	$ 68,020,683
Richmond/Petersburg	$ 40,939,312
Rappahannock	$ 34,206,838
Shenandoah	$ 40,255,676
Southside	$ 34,091,053
Southwest	$ 18,698,417
Total	$ 293,519,334

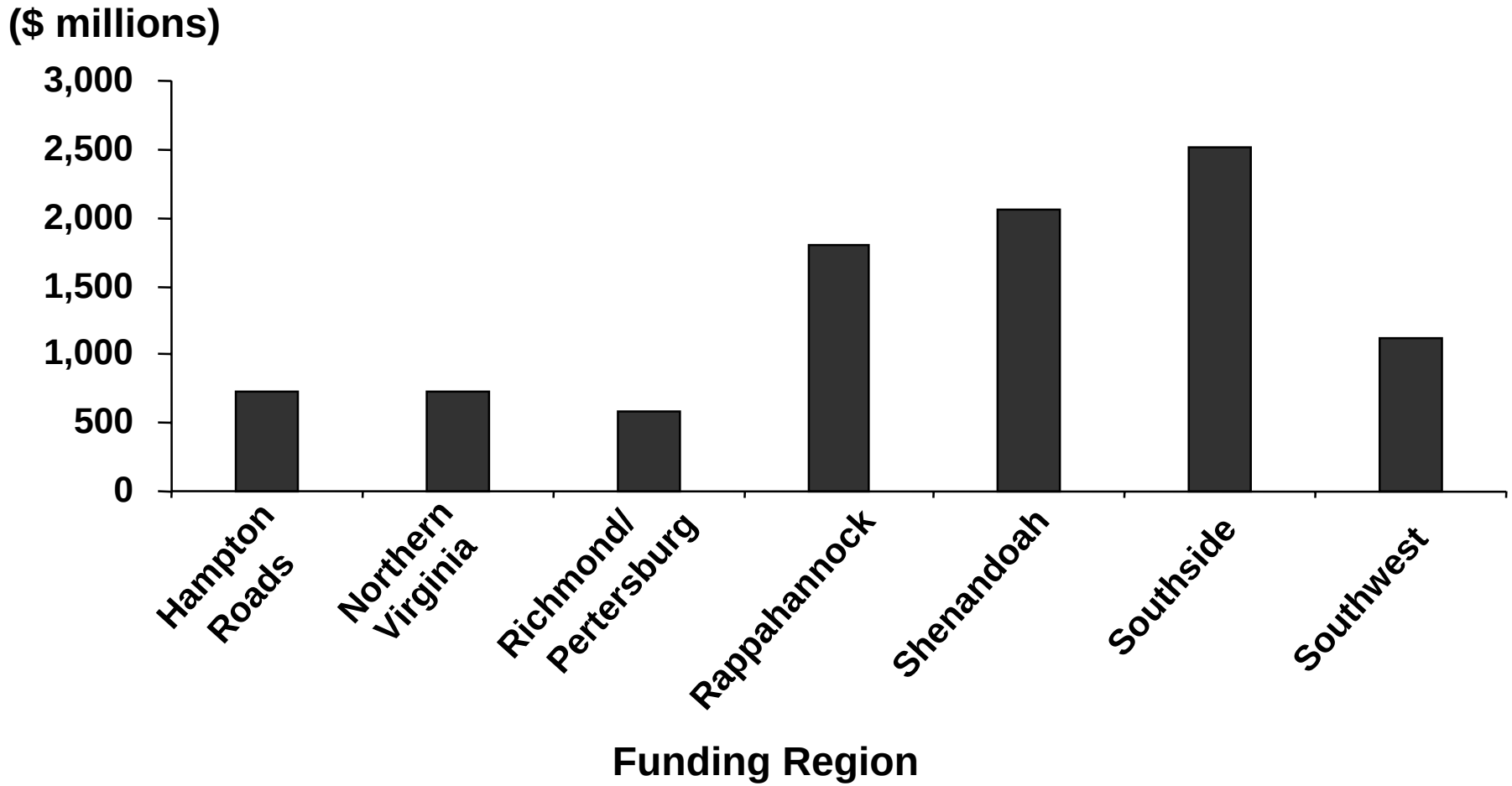
Recommendation

- **The General Assembly may wish to consider requiring that regional system funds be allocated among the seven proposed funding regions based on the total registered vehicles in each funding region.**

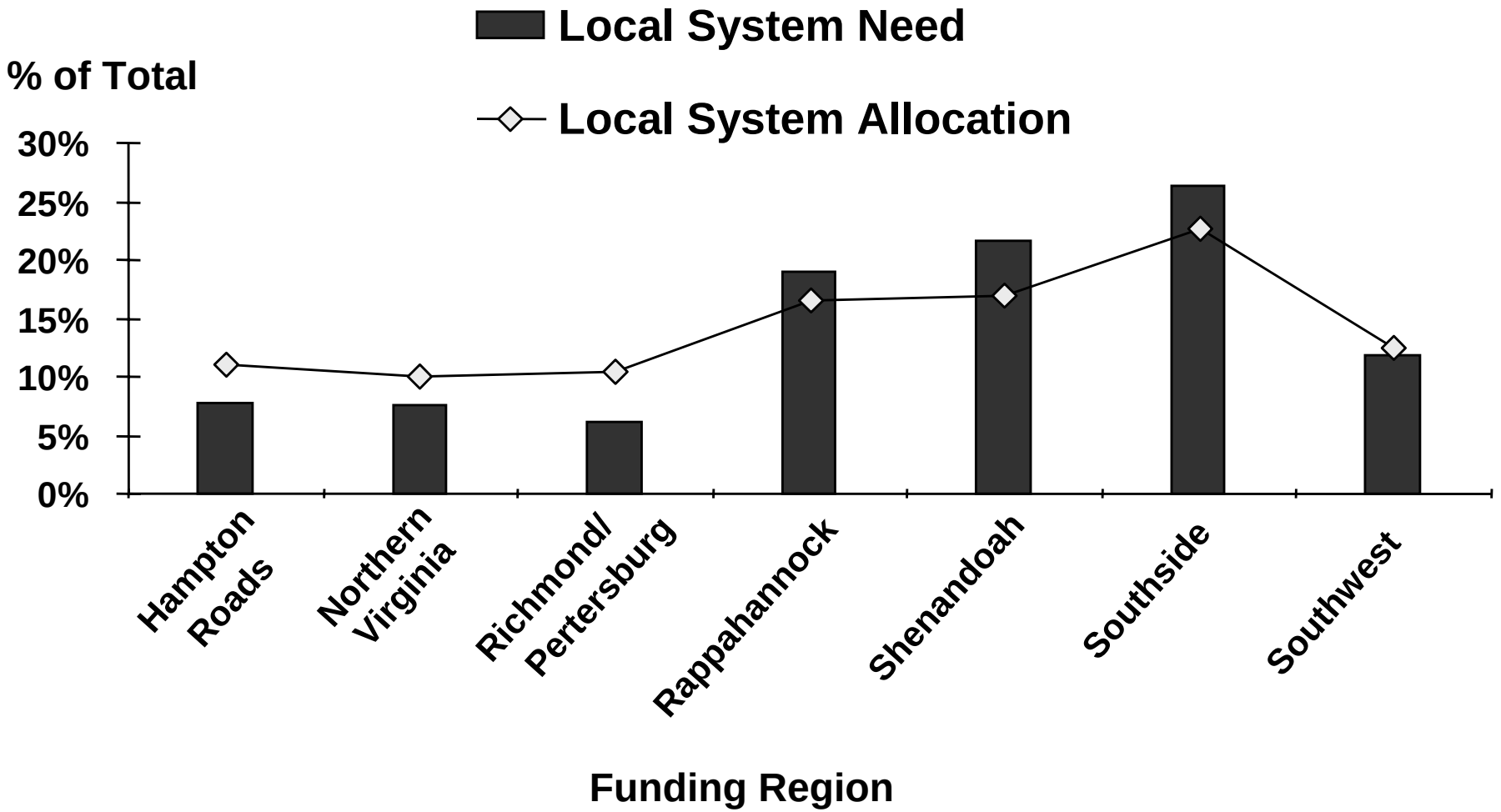
Proxy Selection for Local System Needs

- **System size factors were highly correlated with local system needs**
  - **Centerline miles had strongest association with local system needs**
- **System demand factors were used in combination with centerline miles to determine if any of them had an independent effect on local system needs**
  - **The combination of centerline miles (86%) and total registered vehicles (14%) had the strongest association with local system needs**

Ten-Year Local System Needs by Proposed Funding Region



Relationship Between Local System Needs and Proposed Allocations



Recommendation

- **The General Assembly may wish to consider requiring that 86 percent of local system funds be allocated among counties, cities, and towns based on each locality's proportion of local system centerline miles, and 14 percent of local system funds be allocated based on each locality's proportion of total registered vehicles.**

Unpaved Roads Should Be Funded Through Local System Allocations

- Unpaved road needs were accounted for in local system needs assessment
- Because unpaved road needs were included in assessment, local system needs were higher in rural areas, and thus rural counties would receive a larger share of local system funds
- Each county would have the flexibility to determine the relative importance of addressing unpaved road and other local system needs within its jurisdiction

Recommendation

- **The General Assembly may wish to give counties greater flexibility in meeting local road needs by combining local system and unpaved road funds in a single fund.**

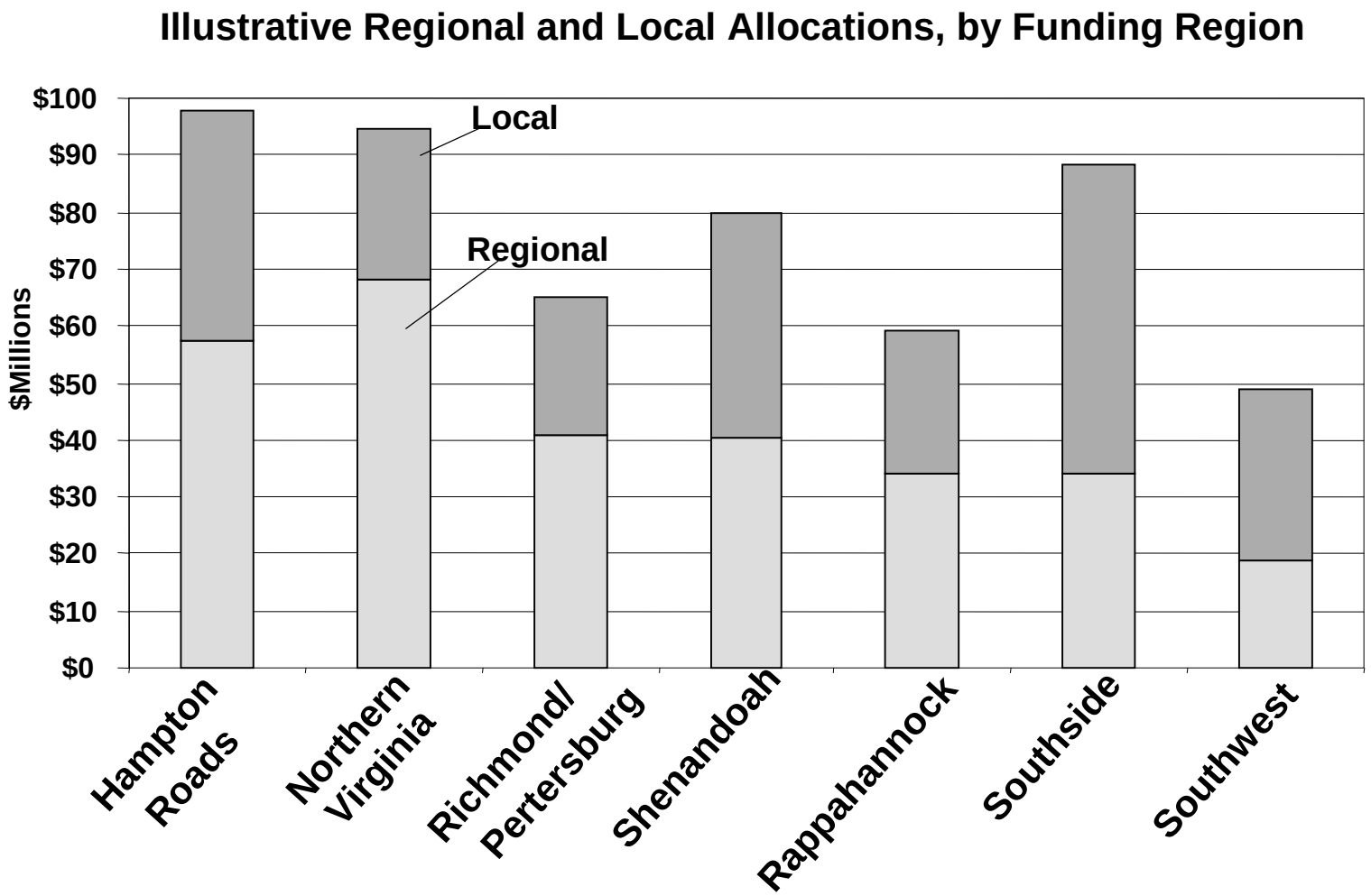
If Formulas Are Modified, Additional Funding Would Go to Statewide Roads

- 39 percent of the identified needs are on the the statewide system
- Although system contains less than ten percent of the lane miles, it carries 50 percent of total traffic
- 30 percent of Virginia's urban principal arterial system is seriously congested; nationally that figure is only 21 percent
- General Assembly's recent designation of a Priority Transportation Fund appears to reflect fact that current system is not allocating sufficient funds to major roads

Formula Changes and Local Roads

- Proportion of local needs has declined relative to needs on higher systems since formulas were last evaluated
- Higher-cost secondary and urban system roads would be transferred to statewide and regional systems under this proposal
- In addition, under new system a greater proportion of the local needs are in non-urbanized areas

Regional System Provides Additional Funding to Urban Areas



JLARC Identified Substantial Bridge Deficiencies

- 1,340 bridges are eligible for replacement using federal funds based on their deficient condition
- An additional 1,363 bridges will require replacement within the next ten years based on their age
- Federal standards were used to determine which bridges require replacement and to estimate the cost of replacing each of these bridges

Examples of Severely Deficient Bridges

Bridge	Location	Rating*	Average Daily Traffic	Year Built
E. Hawthorne Street over C&O Railroad	Danville	0.0	3,337	1900
Route 58 over North Mayo River	Henry Co.	0.0	6,521	1955
Washington Blvd over Columbia Pike	Arlington	2.0	67,000	1944
Huguenot Road over James River	Henrico Co.	3.3	29,832	1949
Fall Hill Avenue Extension over Old Rappahannock Canal	Fredericksburg	6.4	5,165	1950

*Key:
- 81-100: Bridge is in acceptable condition
- 51-80: Bridge eligible for federal rehabilitation funds.
- 50 and below: Bridge eligible for federal replacement funds.

Cost of Meeting Ten-Year Bridge Needs Estimated at $2.28 Billion

- Cost of replacing deficient bridges estimated by multiplying square footage of bridge by actual per square foot costs of bridge replacements in Virginia over past three years
- Using this methodology, JLARC staff identified $1.73 billion in existing bridge needs
- An additional $547 million in bridge needs are forecast over the next 10 years

VDOT Allocates No Funding Specifically for Bridges

- Virginia does not have a State fund reserved for bridges, nor does it program federal bridge funds to areas based on relative bridge needs
- Instead, federal bridge replacement and rehabilitation funds flow through the overall State highway allocation formula
- Bridge projects are undertaken only if an area chooses to use its primary, secondary, or urban funding on bridge projects

VDOT's Lack of Attention to Bridges Will Lead to Federal Penalties

- Under federal rules, if a state transfers its bridge funds to another program, it is penalized and the state's bridge apportionment for the following year is reduced
- VDOT transferred $110 million of bridge funds earlier this year
- According to FHWA staff estimates, Virginia will be penalized by a $12.7 million reduction in its FY 2002 federal bridge apportionment
- As part of the penalty, Virginia will be ineligible for funding from the bridge discretionary program

High Cost of Bridge Work Deters Spending on Bridge Replacements

- One of the principal reasons VDOT often transfers bridge funds is because of the high cost of bridge work compared to highway construction
- Because of the high costs, localities and the CTB often are reluctant to direct limited funds to bridge projects
- Bridge work costs 20-60 times more than typical highway work on a per mile basis

Secondary & Urban Allocations Often Not Sufficient to Replace One Bridge

Several years ago, the Town of Front Royal de-annexed land specifically because it could not afford to repair two bridges with the funding available for construction from its urban system allocation. One of these bridges, the North Fork Shenandoah River Bridge on U.S. Route 340 now is scheduled for improvement at a cost of $15 million, funded from the Staunton district's primary allocation. Front Royal receives approximately $1 million per year for construction funding. As the town manager stated, "you can quickly see that a town like Front Royal could not afford to use its entire urban allocation for fifteen years just to improve a bridge less than 0.2 miles long."

Secondary & Urban Allocations Often Not Sufficient to Replace One Bridge

A bridge crossing Cat Point Creek in Richmond County recently had its weight limit reduced because of deteriorated conditions, thus preventing fire trucks from using this bridge, which is the most direct link to the northern portion of the county. As county staff stated,

> ***The governing body of the county supports the immediate replacement of this bridge – VDOT concurs – the public cannot understand why the bridge has not been replaced. The reason is simple! The current funding mechanism requires money to come from the local secondary road budget…The preliminary estimate for the bridge and approaches is almost $4.4 million. The Richmond County total annual secondary roads budget is approximately $650,000. Seven years of the entire Richmond County budget for secondary roads would be required to build the bridge – what happens to the other secondary requirements during this period?***

Bridge Needs Are Not Distributed in Same Proportion as Highway Needs

Comparison of the Percentage of Bridge Needs to the Percentage of Overall Highway Needs, by Proposed Funding Region

District	Percent Highway Needs	Percent Bridge Needs	Ratio Bridge Needs to Highway Needs
Northern Virginia	22.83%	3.85%	0.17
Hampton Roads	20.58%	11.03%	0.54
Richmond	13.02%	17.68%	1.36
Shenandoah	15.46%	21.45%	1.39
Southside	11.53%	17.17%	1.49
Rappahannock	10.93%	17.80%	1.63
Southwest	5.66%	11.02%	1.95

Source: JLARC staff analysis of VDOT data.

Federal Bridge Apportionments Should Be Reserved for a Bridge Fund

- VDOT receives close to $100 million a year from the federal bridge replacement and rehabilitation program
- VDOT maintains a continuously updated database of the condition of all bridges
- This information could be used to prioritize bridge needs based on severity of deficiencies
- Using these funds for a State bridge fund would enable VDOT to allocate bridge funds to the most deficient bridges

Recommendation

- **The General Assembly may wish to consider amending Article 1.1 of Title 33 of the *Code of Virginia* to require VDOT to place federal bridge replacement and rehabilitation funds into a separate State bridge fund and allocate these funds using a prioritization system based on the severity of each bridge's deficiency.**

Presentation Outline

- ☐ Introduction and Summary of Findings
- ☐ Background
- ☐ Functional Classification and Needs Assessment
- ☐ Allocation of Funds Among and Within Functional Roadway Systems Background
- ☑ Adequacy of Funding and the VTA
- ☐ Public Transit in Virginia

VDOT Is Forecast to Have $26 Billion for Construction Over Next 20 Years

- VDOT develops a 25-year revenue forecast in support of federal requirements that MPOs develop financially constrained long-range plans
- Because of concerns about some of the expenditure assumptions in VDOT's forecast, JLARC staff modified it to reflect historic trends
- Based on JLARC's modified forecast, $26 billion will be available for construction over the next 20 years, $4 billion less than VDOT estimates
- The major difference between the VDOT and JLARC assumptions is that JLARC staff estimates maintenance expenditures would increase by 3.2 percent per year instead of less than .5 percent

Completing VTA Projects Will Require Majority of Revenues for 20 Years

- Although VTA provided a significant infusion of funds, these funds are not sufficient to finance the full cost of VTA projects
- Total cost of all priority transportation fund (PTF) and general fund highway projects identified in the VTA is expected to be $17.8 billion
- VTA authorized $1.7 billion of funding for these projects
- After all allocations to these projects through 2001 are accounted for (including allocations before the VTA was passed) a balance of $14.2 billion remains

Completing VTA Projects Will Require Majority of Construction Funds for 20 Years

Comparison of Estimated VTA Project Costs with Forecast of Available Construction Funds

	Anticipated Funding Available			Total VTA Project Costs		(Revenue Gap) or Remaining
10-Year	All Systems Construction Funds:	$12.2 billion	—	$14.2 billion	=	($2.1 billion)
10-Year	Funds After Secondary and Urban Allocations:	$7.7 billion	—	$14.2 billion	=	($6.5 billion)
20-Year	All Systems Construction Funds:	$26.4 billion	—	$14.2 billion	=	$12.2 billion
20-Year	Funds After Secondary and Urban Allocations:	$16.2 billion	—	$14.2 billion	=	$2.0 billion

Note: Construction funds does not include special program funding allocated subject to requirements imposed by State and federal law. Costs refer to the amount unfunded as of FY 2002. The cost estimate only takes into account inflation to the extent that VDOT incorporated inflation estimates for work to be done within the next six years.

Funding Other Six-Year Plan Projects Requires Most Construction Funds

Comparison of Estimated VTA and Six-Year Project Costs with Forecast of Available Construction Funds

	Anticipated Funding Available			Total Project Costs		(Revenue Gap) or Remaining
10-Year	All Systems Construction Funds:	$12.2 billion	—	$15.6 billion	=	($3.5 billion)
10-Year	Funds After Secondary and Urban Allocations:	$7.7 billion	—	$15.6 billion	=	($7.9 billion)
20-Year	All Systems Construction Funds:	$26.4 billion	—	$15.6 billion	=	$10.8 billion
20-Year	Funds After Secondary and Urban Allocations:	$16.2 billion	—	$15.6 billion	=	$0.6 billion

Note: Construction funds does not include special program funding allocated subject to requirements imposed by State and federal law. Costs refer to the amount unfunded as of FY 2002. Projects included are all VTA projects, and all non-VTA interstate and primary system six year plan projects. The cost estimate only takes into account inflation to the extent that VDOT incorporated inflation estimates for work to be done within the next six years.

VTA Achieved Important Goals

- **The General Assembly's frustration with the lack of project funding, and VDOT's perceived unresponsiveness to the legislature, led to the enactment of the VTA**

- **The VTA served the following important purposes:**
  - **Alleviated near term-term cash shortage by infusing the Transportation Trust Fund with approximately $500 million in general fund dollars**
  - **Gave VDOT the statutory authority to issue FRANs**
  - **Established another dedicated revenue source for transportation – one-third of revenue collected from insurance license tax**

VTA has Complicated Construction Funding Process

- Reduces VDOT's programming flexibility
- Minimizes the Commonwealth Transportation Board's traditional authority to prioritize and select projects for construction
- Over the long term, the Priority Transportation Fund may not fully address one of the fundamental concerns for which it was created – the lack of funding for major road projects

General Assembly Should Have Role in Process Through Appointments to CTB

- Under current law governor appoints at-large Commonwealth Transportation Board members and members from each VDOT district
- General Assembly may wish to give itself the authority to appoint the five at-large Commonwealth Transportation Board members

Recommendations

- **The General Assembly may wish to amend § 33.1-1 of the *Code of Virginia* to provide for General Assembly appointment of the five at-large Commonwealth Transportation Board members.**

- **The General Assembly may wish to consider restoring the Commonwealth Transportation Board's role in project selection by amending the Virginia Transportation Act to remove those provisions that limit the Board's flexibility to program construction revenues made available by the Virginia Transportation Act in accordance with the State allocation formulas.**

Presentation Outline

- ☐ Introduction and Summary of Findings
- ☐ Background
- ☐ Functional Classification and Needs Assessment
- ☐ Allocation of Funds Among and Within Functional Roadway Systems Background
- ☐ Adequacy of Funding and the VTA
- ☑ Public Transit in Virginia

Role of Transit in Meeting Transportation Needs

- **Public transit provides transportation alternative to private vehicles**
  - **Reduces congestion on highways**
  - **Provides a means of transportation for many Virginians who are not able to or cannot afford to drive an automobile**
- **Public transit provides benefits in addition to improved mobility**
  - **Air quality improvements**
  - **Welfare reform assistance**
  - **Neighborhood revitalization**

Public Transit Provides Transportation Alternative to Private Vehicles

- Transit may be a more cost-effective means to handle excess travel demand during peak periods than adding additional highway lanes
- Metrorail in Northern Virginia is a good example of how transit services can supplement roadways in high travel demand corridors (approximately 200,000 daily riders)
- Public transit provides sole means of transportation for many Virginians, including elderly, disabled, and low-income persons

Public Transit Provides Benefits in Addition to Improved Mobility

- **Effective public transit may improve air quality by reducing vehicle emissions**
  - **In large urban areas, public transit is a necessary component of transportation planning in order to meet federal clean air requirements established by the Environmental Protection Agency**
- **Effective transit service assists State welfare reform initiatives by enabling low-income persons to travel to their job sites**
- **Transit stations may serve as a hub for economic activity and help revitalize declining neighborhoods**

Several Factors Affect Viability of Public Transit

- Although a basic level of transit service is necessary in most areas of the State, transit services are generally more effective in high-density urban areas
- Local land use planning can affect transit viability by making neighborhoods more or less conducive to public transportation
- A lack of regional cooperation has slowed the development of transit in some areas of the State, as local officials place different priorities on transit services

Nature of Transit Operations in Virginia

- **39 public transit operators currently exist in Virginia**
  - **Most operators provide bus service**
  - **Two rail providers in Northern Virginia**
- **Total transit ridership was nearly 160 million in 2000**
  - **113 million riders in Northern Virginia**
- **Public transit services in Virginia are operated at the local or regional level – there is no State-operated public transit service in Virginia**

Public Transit Funding Sources

- **Operating revenue**
  - Consists mostly of fare box revenue, with some revenue from other enterprises such as advertising
  - Proportion of operating expenses covered by operating revenues varies across operators
- **Federal assistance**
  - Provided through 14 different federal programs, including both transit and highway programs
  - Federal Transit Act funds provided $120.6 million for transit operations in Virginia in FY 2000
  - TEA-21 provided flexible transportation funds for transit services totaling an additional $27.8 million in FY 2000

Public Transit Funding Sources
(continued)

- **State assistance**
  - **Primary source of state assistance is the Commonwealth Mass Transit Fund (MTF), which is comprised of 14.7 percent of the Transportation Trust Fund**
  - **Northern Virginia Transportation District Program Bonds provided an additional $34 million in FY 2000 for capital improvements on specific projects in the district**
  - **General Assembly appropriated an additional $35 million in General Funds for 2001-02 biennium for a new mass transit assistance program**

Public Transit Funding Sources (continued)

- **Local Assistance**
  - Localities provide the remainder of funds needed to operate and maintain transit services
  - Local general funds provided $91 million in FY 2000 to transit operators in Virginia
  - Northern Virginia regional gas tax provided $20 million in FY 2000 to transit operators in Northern Virginia

Disincentive for Localities to Invest in Transit Alternatives

- Construction and maintenance costs of highway projects are funded by the State, while localities are required to assume some of the ongoing financial responsibility for operating and routine capital expenses associated with transit projects

- Due to differences in State funding of highway and transit projects, transit operators contend there is a disincentive for localities to invest in transit alternatives

Intermodal Transportation Solutions Are Increasingly Important

- As traffic congestion grows in major urban corridors and additional road expansion becomes a more costly option, other modal options are increasingly being considered
- There is increasing need for multimodal solutions, leading to a need for coordination among them
- While transit needs appear to be increasing, funding for new capital projects is scarce

Professional Staff Are Needed to Conduct Intermodal Analysis

- An intermodal office with professional staff needs to be established to advise the Secretary of Transportation and CTB regarding intermodal issues
- The staff should provide:
  - Intermodal analysis regarding major transportation corridors
  - Coordination between agencies regarding multimodal projects

Recommendations

- **Recommendations to promote informed intermodal decisions include:**
  - **Establishing an intermodal office**
  - **Moving the Office of the Secretary of Transportation**
  - **Requiring that the vice-chair of the CTB be selected from among the voting members of the Board**